Cookie Clicker

Gamification

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Abstract: Incremental games like *Cookie Clicker* are a perfect exemplar of gamification, using progress mechanics and other game features to make a rote act like clicking compelling. Hence, this chapter reads the game *Cookie Clicker* for its motivating features to illustrate the logic and limits of gamification.

As I type these words into my text editor, the open browser tab next to it informs me that I am currently baking 62.526 sextillion cookies per second. Since I began playing *Cookie Clicker* (Thiennot, 2013) in earnest, I have unlocked 233 of the game's 252 achievements, purchased 312 of its 319 upgrades, and baked 712.105 octillion cookies. All of this has taken me—and this is particularly distressing—8,432 hours and counting. Granted, play time and cookies continue to accrue when I don't keep the game open in one of my many browser tabs. But still, counting the hours I did switch attention to the game tab every couple of minutes to click here and there, I have invested orders of magnitude more time in *Cookie Clicker* than any other video game in my life.

This was not meant be. *Cookie Clicker* and similar so-called incremental games were never supposed to be played in earnest. They were intended as parodies.[1] In particular, they ridiculed online role-playing games like *EverQuest* (Sony Online Entertainment, 1999) and social network games like *FarmVille* (Zynga, 2009), which relied heavily on so-called *progress mechanics* pioneered by computer role-playing games.[2] By killing monsters or harvesting crops,

players gain resources (experience points, gold) that they can spend on upgrades like character attributes or equipment which increase their ability to kill more monsters, harvest more crops, etc. Now a common view among game designers is that what makes games fun is a sense of skilled mastery arising from overcoming challenges.[3] Yet progress mechanics involve no such challenge or skill, only time to churn one increasing number (damage per second) into another (experience points) and back in an ever-accelerating positive feedback loop. Starting with *Progress Quest* (Fredericksen, 2002), game designers therefore created numerous little parodies—proto-incremental games—that presented a *reductio ad absurdum* of progress mechanics to demonstrate how unengaging and "not a game" they were.

*Cookie Clic*ker is a perfect case in point. Launched in 2013 as an "Internet experiment" by French artist Julien Thiennot, this browser game presents the player with nothing but a big virtual chocolate chip cookie. Clicking this cookie produces a baked cookie in the bank.[4] The player can invest baked cookies into cursors that then *automatically* click the big cookie. As more cookies are produced, more expensive and powerful auto-cookie makers become available: grandmas that bake cookies, banks that generate cookies from interest, cookie factories, wizard towers, space ships, complete with productivity upgrades (steel-plated rolling pins) and exponentially rising numbers—tens, thousands, trillions, nonillions of cookies earned and spent. The self-deprecating silliness is apparent, as is the lack of challenge and skill. Indeed, early on, players can leave the game to play itself. *Cookie Clicker* is not just an *incremental game* where the goal is to increase a number, but also an *idle game* that makes progress on its own, requiring no player input.[5] Beyond erasing any semblance of challenging gameplay, *Cookie Clicker* (like other incremental games) exemplifies the financial principle of compound interest and how returns on capital must in time outpace returns on labor. Even with all upgrades purchased, my

cookie factories and banks outperform my manual clicking labor at a rate of at least 10 to 1. And while my mouse finger fatigues within seconds, my capital assets never sleep. All I need to do is reinvest overnight gains when I return to the computer in the morning.

[INSERT Figure 25.1 HERE]

Fig. 25.1: Counters, upgrades, achievements: Progress trackers make up most of *Cookie Clicker*'s interface.

Nevertheless, *Cookie Clicker* counts tens of thousands of dedicated players penning online confessions about their "addiction" to the game.[6] In an ironic twist of game history, incremental games have become a highly engaging game genre unto its own. On the online gaming platform Kongregate, which hosts over 120,000 free games, incremental games are the genre that retains and monetizes players better than any other.[7] This raises an obvious question: How? How does this "Internet experiment" render the rote act of clicking so compelling? The answer: *Cookie Clicker* gamifies clicking.

Gamification is commonly defined as the use of game design elements in non-game contexts.[8] Emerging in the late 2000s as a strategy in interaction design and online marketing to increase user engagement, it has since solidified as a design practice across domains like education, health, productivity, or civic engagement.[9] An early influential forerunner was the local recommendation app *Foursquare*. The app asked people to "check in" to places they visit, thereby creating a data log that would feed recommendation algorithms suggesting locations of likely interest. But why would people want to check in to begin with? Enter progress mechanics. Every check-in accrued points, and users could compete with friends on an in-app leaderboard to

see who scores the most points in a week. Checking in to certain places would unlock achievements like the "Gym Rat badge" for 10 check-ins into gyms within one month. This trifecta of points, badges, and leaderboards became the blueprint of most gamified experiences. Launched in 2006, the *Nike+ FuelBand* activity tracker and app for instance tracked and translated fitness activity into "NikeFuel points" which would unlock achievements and could be used to compete with friends.

Gamification has been likened to incremental games from the outset, arguing that both are "taking the thing that is least essential to games and representing it as the core of the experience."[10] Both rely almost exclusively on the same catalog of progress mechanics. And importantly for this book, both invite a particular *reading* of video games: they ask us to identify the "active ingredients" that make a game compelling. For gamification, incremental games, and related genres manifest "pattern-based design."[11] Like prefabricated house parts, they aim to reduce the time, cost, risk, and required expertise of design by identifying and reusing *patterns*: reproducible solutions to reoccurring problems, like "door" or "wall." This pattern focus makes gamification akin to persuasive tropes in rhetorics.[12] At the same time, it foregrounds the limits of treating games (or texts) as isolatable, modular building blocks. Much like the appeal of a house depends on how all its parts fit together, its neighborhood, and the needs of its inhabitants, so too does the appeal of games and other designed experiences depend on the systemic whole of object, person, and social context.[13] Yet the common terms and underlying theories of gamification—game mechanics, design elements, design patterns—suggest a more straightforward and deterministic notion of media effects, namely that the same pattern will produce the same effect in any user.[14]

To illustrate gamification as a way of "reading" games, the following pages will analyze how *Cookie Clicker* gamifies the act of clicking. They will tease out motives and connected design elements as well as illuminate the limitations of such an approach. But before I begin, one caveat is in order: Unlike rhetoric, gamification research is still in its infancy. It lacks established methods for identifying its "tropes" and empirical evidence on most of them. Instead, the literature is littered with *post hoc* fallacies of the form, "Successful web app Slack lets users customize bots, which looks very much like customizing avatars in popular game *World of Warcraft* (Blizzard Entertainment, 2004). *Therefore*, Slack is successful *because* it copied customization from *World of Warcraft* to engage their users."[15] Such stories are seductive. But they are almost always evidence-free speculation that *appear* plausible thanks to the cognitive catnip of analogy and correlation. So reader beware. While the motives I reference in the following are grounded in literature, I have no evidence for their linkage to *Cookie Clicker*'s design beyond 8,432 hours of auto-ethnography.

In 2011, psychologist Teresa Amabile coined the "progress principle." Analyzing diaries of more than 12,000 hours of work life, she found that no single experience proved more motivating than "making meaningful progress."[16] In adult work life, progress is often protracted and elusive, tasks stuck in nested waiting loops, to-do lists growing longer by the day. Amabile argued that managers should therefore learn from video games how to organize work, as games are purpose-built to give constant, abundant, and clear progress feedback.[17] *Cookie Clicker* presents players with countless counters and visualizations of cookies baked, cookies baked per second, upgrades purchased, achievements unlocked, all of which know only one direction: upwards. Every click increases some number, makes some measurable progress. The most common gamification features—points, badges, levels—all deliver such progress feedback.

Critics have called the resulting sense of progress "false" as it doesn't track actual skill growth.[18] "Real" games deliver a motivating sense of competence by presenting "real" challenges that require "real" skill to overcome; the progress mechanics of role-playing games or *Cookie Clicker* deliver only "virtual" skill increases through upgrades which require nothing but time to accumulate.[19] Yet this critique is doubly mistaken.

First, *progress*, the positive feeling of completing a book chapter or adding line by line of tiles to a wall, often but not necessarily coincides with *competence*, the experience of one's growing skill, such as laying an intricate tile mosaic without fail.[20] Researchers Yee and Duchenaut observed a similar distinction in gaming motivations between achievement (completion and growing power) and mastery (overcoming challenges), and found that incremental game players predominantly seek the former.[21]

Furthermore, a closer look into actual *Cookie Clicker* gameplay reveals that its community has framed its own *mastery challenges*. One is sheer tenacity. Keeping at a single "silly" pursuit for hundreds of hours is a real, self-regulatory skill. Additionally, players are actively analyzing and strategizing about how to *optimally* invest resources, playing the "meta-game" of min-maxing play time spent on resources gained.[22] Fan websites and wikis abound with speed-run league tables (who bakes a set amount of cookies fastest); mathematical formulas and tools to calculate the interacting compound rates of return of upgrades; and strategy guides to decide when to switch investments, all reverse-engineered from observing gameplay. This highly involved, quasi-scientific style of gameplay differs in no way from that of "power gamers" playing at the high skill end of traditional video games.[23] Critics likewise often overlook the manifest joy and skill in strategically "gaming" (proto-)gamified systems like frequent flier miles.[24]

Beyond progress and challenge, the progress mechanics of *Cookie Clicker* also serve as a form of *goal-setting*. People work harder, more focused, and more persistent when they have clear, taxing-yet-attainable goals.[25] At any point of play, *Cookie Clicker*'s counters and collections always suggest a range of additional goals (e.g., buy seven more wizard towers to unlock the next wizard tower upgrade, save 10 trillion more cookies to buy the next cookie upgrade).

Importantly, for a new player, what upgrades and achievements exist is a mystery. *Cookie Clicker* milks the whimsy of a cookie-making world for maximum comic effect. The alchemy lab "turns gold into cookies," the septillion fingers cursor upgrade comes, literally, with "[cursory flavor text]". There are many Easter eggs triggered in obtuse ways like minimizing the browser window so that the milk animation touches the main cookie (unlocking the "Cookie-dunker" achievement). About 200 hours into an average first play session, players get to purchase the "Bingo center/Research facility" unlocking a range of extra upgrades which (spoiler alert) will unlock the "Grandmapocalypse" turning grandmas into a fleshy, chtulhoid superorganism. This cornucopia of hidden content provides a steady flow of novelty and surprise, stoking *curiosity*[26] in the player.

Progress mechanics evoking steady feelings of accomplishment; a meta-game of min-maxing; achievements providing a continuous flow of goals; hidden and novel content fueling curiosity: these are some of the ways *Cookie Clicker* transforms clicking into a compelling experience. Just this compulsion has spurred critiques that progress mechanics "trick" players into playing and paying with user data, free labor, or micro-transactions, to the players' detriment. App developers and web companies like Facebook are beginning to be called out for using similar "dark patterns" to "addict" users and harness and resell their attention and data to

advertisers. Urgent as this current ethical reckoning is, it easily slips into a false distinction between ethically "neutral" and "problematic": *any* design affords and constrains people's future acting and thinking and as such, *any* design is persuasive. If anything, gamification and its siblings, persuasive technology, nudging, and design for behavior change, have the merit of clarity: carrying their persuasive intent on their sleeves, they cannot evade ethical deliberation.[27]

Finally, just as gamification and incremental games illustrate the power of design, they also remind us of its limitations. After all, in playing *Cookie Clicker* and other early incremental games continuously, passionately, and in the thousands, players did the opposite of what their original designers intended and expected.

Take the cautionary tale of game designer and critic Ian Bogost (who is included in this book) and his Facebook game *Cow Clicker*. Bogost published it in 2010 as "a satire with a short shelf life" to show "the worst abuses of social gaming in the clearest possible manner."[28] Players could click a cow every six hours, producing a "click" and Facebook post. Clicking on the cows and posts produced more clicks, which players could spend on premium cows. *Cow Clicker* had no progress loop: premium cows didn't earn more clicks than basic ones. But to Bogost's own dismay, *Cow Clicker* became a viral hit with more than 50,000 players at its peak. What moved its players was often irony—being in on the joke. Other times, it was the social bonds formed over discussing the absurdity of clicking cows. Yet others played *Cow Clicker* in "cheeky protest." Even when the "Cowpocalypse" removed all the pixel cows, players could and would still click the void. As one user put it, "It is very interesting, clicking nothing."[29]

While often outwardly fruitless or even counterproductive, such protest play can serve an important psychological need; namely, to reassert one's autonomy against a coercive environment. Autonomy is itself an important source of game enjoyment, leading us to a

fundamental paradox. On the one hand, compelling people into engagement through gamification can deplete the very source it tries to tap—the joy of autonomous play.[30] On the other, faced with games designed to coerce them, players can respond by playing *despite*—and therefore freely. Nothing gained, nothing learned, clicking nothing. "One must imagine Sisyphus happy."[31]

This is not to say that *all* people play *Cookie Clicker*, *Cow Clicker*, or any other incremental game out of enlightened existential spite. Most of my own 8,000+ hours, I certainly didn't. But the fact that we *can* and occasionally *do* testifies that the appeal of games is not exhausted nor determined by their design. After designers put games and gamified experiences in the world that afford certain motives and behaviors, people find their own reasons and ways of engaging that designers can neither fully predict nor control.

Further Reading

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